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AGRICULTURE

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CHINA REPORT

AGRICULTURE

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PEOPLE'S REPUBLIC OF CHINA

I. GENERAL INFORMATION

THEORY PROPOUNDED FOR EVALUATING, READJUSTING AGRICULTURAL STRUCTURES

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 8, 23 Aug 82 pp 3-7

[Article by Deng Honghai [6722 1347 3189], Technical Economics Institute, Chinese Academy of Social Sciences: "Theory and Methods of Readjustment of the Agricultural Production Structure"]

[Text] Rationalization of the structure of agricultural production is a major task in the current readjustment of the national economy. In recent years, the work of readjusting the structure of China's agricultural production has achieved initial success. However, as a result of longterm inattention to the study of agriculture from the angle of its structure, the foundation for research work on its structure is weak, and in both theory and methods for readjustment of the agricultural production structure, four problems still exist today. One is that the concept of agricultural production structure is still limited to economic description; it has not risen to the category of a precise science. Second is that only the proportion of the five industries [agriculture, forestry, animal husbandry, sideline occupations, and fisheries] is considered and systematic analysis and overall balance of the overall structure of agricultural production is ignored. Third, rationality of the structure is evaluated only in terms of the proportional size of the farming industry rather than in terms of the structure's overall effectiveness. Four, qualitative and quantitative analysis of the structure of agricultural production in each area is lacking, and no optimum structural plans are presented. As a result, a set of scientific theories and methods are urgently needed for systematic study of the structure of agricultural production, so that readjustment of agriculture everywhere can be genuinely carried out to get the optimum structure for local conditions. Furthermore, systematic study of the structure of agricultural production requires, first of all, a systematic understanding of agricultural production itself.

1. Agricultural Production is a Complex System Formed of a Combination of an Agricultural Ecological System, an Agricultural Technical System, and an Agricultural Economic System.

One essential characteristic of agricultural production that differs from the industrial and other sectors lies in certain agricultural production not only using a definite ecological system as its environment, but also that a definite

ecological system is its means of production, i.e. agriculture always uses a definite ecological system to conduct material production. This system, which uses the photosynthesis of green plants in a definite ecological system to produce organic products, forms a definite type of agro-ecological system. Within this system, the amount of organic matter that plants fix and form from solar energy constitutes this system's primary output or biological output. The herbivorous animals that depend on plants for nourishment constitute this system's secondary output. Carnivorous animals that use herbivorous animals to live constitute this system's tertiary output. Yet other carnivorous animals that use these carnivorous animals to live constitute the quarternary and quintenary output. Any output provided for the consumption of mankind in the biological output of these levels constitutes economic output. After mankind consumes these economic outputs in production or in daily life, he breaks the original balance of this ecological system, some of the energy and material taken away not being restored to the system. This requires that people use farm labor to put in economic energy and economic material (the energy and material that can be obtained only through labor) to make up the shortfall so as to maintain the energy circulation and material cycle of this system. Moreover, agricultural labor is always carried out by using definite technical systems within a definite economic system. Consequently, for every period of energy flow and material cycling in the agricultural ecological system, people have to put economic energy and economic materials into this agricultural ecological system from a definite agricultural economic system through a corresponding agricultural technical system, and take economic goods from the energy and materials put out by this agricultural ecological system. Agricultural preproduction is carried on through a process of mutual exchange of economic energy and economic material for natural energy and natural material through the agricultural technical system of the agricultural economic system. From this may be seen that any agricultural production must be a complex system that combines a definite agricultural economic system, an agricultural technical system, and an agricultural ecological system.

This essential characteristic of agricultural production, and this special position of the agricultural ecological system in agricultural had not been consciously understood by mankind for a long historical period. Ever since the industrialization of agriculture in developed countries, people have been accustomed to regarding agriculture from the same point of view that they regard industry, looking only at its economic system and technical system and ignoring its ecological system and the technical system in the modernization of agriculture, but did not devote attention to improving benefits from the ecological system. As a result they were repeatedly punished by ecological laws, sustained losses and setbacks time after time, and only after the worldwide ecological crisis and energy crisis appeared did these advanced countries have no choice but to examine their already developed agriculture in terms of a combination of the economic, the technical, and the ecological in an effort to explore a new agricultural model combining the economic, the technical, and the ecological. This was an instance in which natural laws and economic laws forced people to regard the mutual role of the three systems as an organic whole. In the course of the readjustment of China's agriculture, we should absorb the historacal experiences and lessons of world development of agriculture, respect the objective fact of agricultural

production being formed from three sub-systems, consciously regard the mutual role of these three sub-systems as an organic whole, and make a highly comprehensive assessment of the structure of agriculture everywhere in terms of a combination of these three sub-systems. With the goal of improving the overall effectiveness of these three sub-systems, we should determine to readjust the structure of agricultural production everywhere to make it a certain kind of structure, thereby placing readjustment of China's agriculture on a scientific path. If we do not, we will sustain the merciless punishment of objective laws, and after being punished, we will still have to understand agricultural production in this way.

Actually, the classical works of Marxism long ago expounded such a situation in agricultural production. Marx said, "No matter the special social nature of the process of economic reproduction, within this sector (agriculture), it is always intertwined with a natural reproduction process." ("Complete Works of Marx and Engels," Vol 24 pp 398-399, Renmin Chubanshe, 1972.) The economic reproduction process spoken of here means the transformation of labor the circulation of funds, and the economic material and economic energy cycles is the agricultural economic system. The basic functional unit in economic reproduction is a definite agricultural economic system. The natural reproduction process spoken of here means the energy transformation and material cycle in the agricultural ecological system. The basic functional unit of natural reproduction is a definite agricultural ecological system. The intertwining of these two reproduction processes means a series of energy and material transformations in the agricultural economic system through the agricultural technical system and the agricultural ecological system. The economic energy and economic material of the agricultural economic system is transformed through labor into physical energy and chemical material in the agricultural technical system. Within the agricultural ecological system, the agricultural technical system's physical energy and chemical material is transformed into biological energy and biological material. These material products of the agricultural ecological system are transformed in turn by the agricultural technical system into economic products and sent into the economic system. Even though ecological theory had not been formed at that time and Marx was unable to make a systematic analysis of the natural reproduction process in the same way he had done for the economic reproduction process; nevertheless, Marx's brilliant exposition of the nature of agricultural production provided us a theoretical basis for systematic understanding of agricultural production. Today when ecological science and systems science are flourishing, by following Marx's line of thinking for further penetrating understanding of agriculture in order to make a further systematic analysis of agricultural production, and to define agricultural production in terms of a complex system formed of an agricultural economic system, an agricultural technical system, and an agricultural ecological system permits us to raise the concept of agricultural production from the empirical description stage to the category of an exact science. Marx said that only when science successfully applied applied mathematics could it reach the point of perfection. ("Complete Works of Marx and Engels," Second Russian Language Edition, Vol 33, p 72) By using a systematic concept to understand agriculture and to define agricultural production in terms of a complex system of three sub-systems, it is possible to use systems engineering techniques to describe

agricultural production mathematically, and to analyze systematically, both qualitatively and quantatively and ever more concretely, agricultural production everywhere so that we can both ever more accurately master agricultural production in terms of its qualitative forms and within its quantative limits to make agricultural management increasingly rational and scientific.

2. The Structure of Agricultural Production Is a Three Dimensional Network Formed by the Intertwining of the Agricultural Economic Structure, the Agricultural Technical Structure, and the Agricultural Ecological Structure

The agricultural production structure that is seen by looking at agricultural production using systematic concepts is not the five industry structure of farming, forestry, animal husbandry, sideline occupations, and fisheries, but is rather a three dimensional network structure formed by the intertwining of the agricultural economic structure, the agricultural technical structure, and the agricultural ecological structure in which the agricultural economic structure, the agricultural technical structure, and the agricultural ecological structure are first order structures of agricultural production. These three kinds of first order structures are divided, in turn, into various second order structures. The agricultural economic structure includes: 1. The economic component structure, which in China's socialist agriculture is a structure in which the state economy, the enterprise economy, and the household privately retained economy are combined. 2. The production, distribution, exchange, and consumption structures within the economic reproduction process. 3. The economic sector structure, a structure formed from a combination of the farming, forestry, animal husbandry, sideline occupation, and fishery sectors. 4. The economic regional structure, by which is meant the spatial structure and regional distribution of agricultural production. The agricultural technical structure includes: 1. A structure formed from physical techniques, chemical techniques, and biological techniques. 2. A structure formed from a combination of primitive techniques, traditional techniques, transitional techniques, and modern techniques. 3. The product input and output structure, that is the direct consumption coefficient matrix. The agricultural ecological structure includes: 1. A structure composed of diverse agricultural ecological systems (including forests, grasslands, farmlands, waters, residential areas, and garden systems) in a given area. 2. A biological community structure (plants, animals, and micro-organisms) within individual agricultural ecosystems. 3. The energy balance, moisture balance, and nutrient balance within regional ecosystems and individual agricultural ecosystems. These second order structures are formed from diverse third order structures. These include the balance between income and expenditures within the national, the enterprise, and the household economies; the proportion between consumption and accumulation in distributions; the proportion of various crops in agriculture in a narrow sense (farming), the livestock and poultry structure within the animal husbandry industry; the proportion of the five kinds of forests and the proportion of forest crops within the forestry industry, as well as the proportional amount of felling, processing, and afforestation; the enterprise type structure, the product structure, and the production and marketing structure within industrial sideline industries; the proportional amount of catching and breeding and the

proportion of power machines, traditional machines, and work machines within physical techniques; the structure formed from various kinds of techniques in each technology; and the colony structure within various biological communities. These third order structures are in turn composed of fourth order and even greater order structures. Such an order by order breakdown can be continued endlessly, and with each breakdown by order, our analysis of the structure of agricultural production deepens a little. Through such a step by step deepening of understanding, our understanding of the structure of agricultural production becomes increasingly concrete. Not only can the various structures of each order in the three sub-systems of agricultural production be broken down (or analyzed) qualitatively, but quantative formulations may also be made. No matter the kind of system, the order, or the aspect of a structure, it can be depicted in energy terms, or expressed in terms of amount of labor consumption, amount of value, amount of currency, amounts of various materials, amounts of time, and amounts of space. Some structures in the agricultural ecosystem cannot be described in terms of conversions to amounts of currency. In addition, a specific structure always corresponds to a specific function. The size of function reflects the degree of rationality of the structure. Consequently, all structures may be described in terms of their function.

In such a systematic view of the structure of agricultural production in which the structure and function of each aspect of each order of each agricultural ecosystem in all kinds of agricultural economic systems, agricultural technical systems, and agricultural ecosystems are organically combined in a total and comprehensive system shows the existence of an inherent relationship between all kinds of microcosmic structures and functions, and between the structure and function of each microcosmic structure and function and the macrocosmic structure and function of agricultural production as a whole. Thus, not only are we able to use the telescope of large scale grain production in large scale agriculture for the study of the structure of agriculture in breadth, and not only are we able to use the microscope of observation of the microcosmic structure for the study of the agricultural structure in depth, but we are also able to analyze systematically the entire structure of agricultural production. If we formulate and quantify one by one the various individual structures and functions of a certain order and determine the quantative relationship of these structures and functions, it is possible to set up an agricultural production model, and electronic computers can rapidly and accurately calculate on the basis of different inputs (readjustment programs) corresponding outputs (results, benefits, and effects). This can provide a scientific basis for selection of the optimum readjustment program and rationalization of the structure.

More importantly, such a systematic understanding of the structure of agricultural production greatly enriches in breadth and in depth the content of the work of readjusting the structure of agricultural production, so that the structural readjustment work is not just a matter of the proportions of the five industries, but rather really proceeds from the realities of the structure of agricultural production in each individual area, uncovers existing irrationalities through a seeking for truth in facts, and permits readjustment by suiting the medicine to the illness. Within the existing

agricultural production structure of individual places, irrationalities are not necessarily or not only in the structure of the five industries, but may also appear in the economic component structure, the agricultural ecological structure, and agricultural technical structure, or in the agricultural economic reproduction structure. They may also occur in the regional structure. Whatever the irrationality, it can only be determined through systematic analysis of the local agricultural production structure.

To conduct a readjustment of the structure of the five industries throughout the country using identical proportions everywhere in a stereotyped way is the same as the many "arbitrary uniformity" methods formerly applied to the country's industrial work in that they contravene the principle of "adaptation of general methods to local situations" in agriculture. Natural and economic conditions differ from place to place, so there can be no identical agricultural ecological structure, agricultural technical structure, and agricultural economic structure, and thus there can be no identical proportions of the five industries that is suited to its own individual conditions, and this optimum proportion can only be found in the overall relationships of the local agricultural production structure.

Looked at in terms of actual circumstances obtained in the agricultural production systems throughout the country, readjustment of the structure of agricultural production at the present stage requires attention principally to work in the following regards: (1) Each area has to find the optimum model for the constituent structure of its agricultural economy (the three tiered state, enterprise, and household economy) suited to the local area so that the present rural production responsibility systems can be improved. (2) Each area has to find the optimum agricultural ecological structure suited to the local area and use this optimum agricultural ecological structure to administer and manage the existing agricultural ecological structure, to improve and restructure the existing agricultural agricultural ecosystem, and to renovate and rebuild a highly efficient agricultural ecosystem. (3) Each area has to find the "suitable agricultural technical system" for the locale, so that China's level of intensivity in agriculture will be constantly increased while at the same time occasioning no "incremental reductions in remuneration." (4) All areas should find the agricultural economic reproduction structure suited to local conditions for most effective integration of agriculture, industry, and commerce. (5) Each area should find the optimum agricultural regional structure for the area, and combine readjustment of local crop patterns, departmental structures, and ecological structures to make the most of regional advantages of local agriculture. (6) Each area should find the optimum local departmental structure and input-output structure so that agricultural production will be able to satisfy to the maximum extent possible the needs of society with limited consumption. Naturally the work to be done in these several regards cannot be done in a disjointed way, but must proceed from the all-around benefits derived from agricultural production as a whole with planning being done in an overall way and carried out in a coordinated way.

3. The Criterion For Rationality of the Agricultural Production Structure Is the Overall Effectiveness of the Agricultural Technical Structure and the Agricultural Ecological Structure

In using systems concepts to look at the structure of agricultural production, one cannot use the proportions of the five industries in agriculturally developed countries or the proportional size of the farming industry as criteria; for the rationality of the production structure, but rather one can only use as a criterion the overall effectiveness of the ecological structure, the technical structure, and the economic structure in agricultural production.

It may be seen from the foregoing analysis of the structure of agricultural production that the structure of the five industries cannot encompass the total agricultural production structure. It is but one aspect of the agricultural production structure. If we divorce ourselves from the ecological structure of agriculture, the technical structure of agriculture, and other aspects of the economic structure of agriculture and isolatedly and lopsidedly look only at the structure of the five industries, it will be impossible to make a comprehensive and realistic evaluation of the structure of agricultural production. The structure of the five industries is determined by the natural conditions and economic conditions for agricultural production, and conditions in individual countries and individual areas differ in thousands upon thousands of ways, so the structure of the five industries cannot be the same. Were a stereotyped structure for the five industries to be used throughout the country and throughout the world, the structure would not be adjusted for the better but only for the worse. The structure of the five industries in agriculturally developed countries suits the natural and economic conditions of these countries; it is suited to their agricultural ecological structures, agricultural technical structures and agricultural economic structures. Their agricultural technical systems are founded on petroleum, and the mineral energy currently being inputed to the agricultural ecosystem is greater than the output of food energy. In reality, more than 1 jin of petroleum is exchanged for 1 jin of grain. China's needs for food and other agricultural products are much greater than in these countries. Were China to copy their agricultural economic systems, the amount of petroleum annually required by the country's agriculture would also be greater than theirs, and where would such a large amount of petroleum come from? Even were a source available, how could we afford to use it? In addition, this kind of technical system is suited only to large area growing of single kinds of crops using large amounts of chemical fertilizers, herbicides and pesticides. Expansion of this technical system would lead to soil exhaustion, environmental pollution, and destruction of the ecological balance. We cannot copy such an agricultural technical structure and agricultural ecological structure. Inasmuch as China's agriculture cannot copy these developed agricultural technical structures and agricultural ecological structures, the structure of the five industries in China's agriculture can likewise not be like theirs. To have our country emulate developed countries in the proportions of the five industries of agriculture uncaring of China's realities is extraordinarily dangerous. It is also necessary to realize that the

proportions of these five industries and of the farming industry are relative figures, and the specifications determined for the five industries are also not identical. Separation from absolute figures and other related circumstances and looking only at these relative figures may frequently lead to ridiculous actions.

Use of the proportions of the five industries will not work, but will use of five basic requirements to measure and evaluate the agricultural production structure of individual places work? The question is whether these five basic requirements will be in accordance with the basic laws of socialist economy, make the most of natural resources, constantly maintain the harmony and balance of all sectors, obtain optimum economic benefits, and help the application of advanced techniques. (See "Readjustment of the Structure of Agriculture and Development of Agricultural Production," published in "Agricultural Economy Reference Materials" by the Agricultural Economics Institute of the Chinese Academy of Agricultural Sciences, Issue No 8, 1981). This article says that any technical economic activity has to follow certain principles and that direct use of these principles to evaluate any specific technical economic activity will not work. All technical economic activities have their own individual specific results. Evaluation of these specific results requires making specialized standards, specialized criteria systems, and specialized evaluation methods out of these principles. Evaluation of the rationality of agricultural production structures is also like this. The concrete manifestation of their rationality is various specifically intended results. Consequently, they require specialized criteria systems, and specialized evaluation methods.

Inasmuch as the structure of agricultural production is a multi-layered structure composed of the agricultural economic structure, the agricultural technical structure, and the agricultural ecological structure, an evaluation of the rationality of the agricultural production structure requires an all around evaluation of the rationality of various individual structures in individual aspects of individual orders in the systems making up the agricultural production structure. For every specific structure there is always a specific corresponding function, and a specific function naturally produces a corresponding benefit. Consequently the criterion for evaluating the rationality of a structure has to be the benefits of this structure. On the basis of the various aspects of the individual orders of this overall system in agricultural production, the agricultural economic structure may be divided in terms of function into an agricultural technical structure and an agricultural ecological structure. Therefore, standards for evaluation of the rationality of the agricultural production structure must be the overall benefits provided by these economic structures, technical structures, and ecological structures. These overall benefits correspond to the sum total of agricultural economic benefits, agricultural technical benefits, and agricultural ecological benefits. Comprehensive evaluation of the three kinds of benefits from these three kinds of structures permit us to make a comprehensively systematic and accurate evaluation of the rationality of the agricultural production structure everywhere, to find the irrational links, and to set a course for readjustment of the structure.

Any evaluation of the rationality of an agricultural production structure must be a comprehensive evaluation of agricultural economic benefits, agricultural technical benefits, and agricultural ecological benefits, and not just an evaluation of economic benefits. A dialectical relationship exists among economic benefits, technical benefits, and ecological benefits in agricultural production, and there is both a mutual unity and a mutual contradiction among them. In a situation wherein the existing techniques of developed countries are taken to be symbols of agricultural modernization with blind pursuit of the advanced techniques of these countries, and use of the quantities of machine power, chemical fertilizers, and pesticides as are used per unit of area in these countries so that the speed of increase of things that converted from mineral energy greatly exceeds the speed of increase in agricultural products, and the speed of increase in material expenditures greatly exceeds the speed of increase in output, results in increased output with no increase in earnings or even reduced earnings, and ever decreasing economic benefits from these advanced techniques. This is a common manifestation of the contradictory unity of technical benefits and economic benefits. In circumstances of a plundering style of operations in agriculture, blind pursuit of momentary economic advantage, much use and little nourishment, and taking much but restoring little to cultivated land; reckless cutting and denudation of forests with much cutting and little afforestation so that the amount of felling is greater than the amount of growth; overgrazing of grasslands that are only used but not nurtured; and overfishing in the fishing industry all lead to deterioration of the ecological environment and steady decline in resources that plunges agricultural production into a vicious cycle. This is a general manifestation of the contradictory unity of economic benefits and ecological benefits. Countless lessons of history of the past and present, from China and from abroad have taught us that when evaluating and readjusting the structure of agricultural production, there can be no proceeding in isolation from a single benefit, but rather one must proceed from the heights of a combination of economic benefits, technical benefits, and ecological benefits. It is particularly important not to divorce oneself from ecological benefits because any evaluation or readjustment that is divorced from ecological benefits will be deficient and narrow. In long range terms and overall terms, such an evaluation and readjustment will be bound to be unreliable.

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SURVEY REPORT ON PLANNED ECONOMY ISSUED

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese
No 8, 1982 pp 63-64

[Article: "Survey on 'Agriculture Should Also Institute Taking the Planned Economy as the Key Link With Market Regulation Being Supplementary' Carried Out Jointly by the Chinese Academy of Social Sciences and Eight Provinces"]

[Text] Discussion and exchanges took place between 25 and 30 June about a survey on "agriculture should also institute taking the planned economy as the key link with market regulation being supplementary." This survey, the drafting of an outline for which had begun in late March, was carried out during April and May. It had been jointly organized by the Economics Institute of the Chinese Academy of Social Sciences and the economic research institutes (or offices) of the social science academies (or institutes) of the eight provinces of Guangdong, Zhejiang, Jiangsu, Anhui, Shandong, Sichuan, Gansu, and Liaoning. Also invited to participate in the survey and discussions was a total of more than 50 people from the Institute of Economics of the State Planning Commission, and both theoreticians and people engaged in practical work from departments concerned and from institutions of higher learning in the eight provinces. The survey report presented to the discussion meeting consisted of 22 pages containing about 180,000 characters. During the second half of the year, several special topics will continue to be surveyed in depth.

The content of this survey was divided into two main parts. One was on the management and organization of agricultural planning. The other was on problems in planning and management in the rural commodity flow area. Comrades who participated in the survey and discussions believe that with the rapid development of agricultural production, new changes have taken place in both the structure of the rural economy and farm crop patterns, and that the commodity flow area has begun to come alive. In order to adjust to the diverse kinds of responsibility systems in agricultural production, to the rural businesses' economically diversified components and methods of economic diversification, and to the multiple flow channels and multiple forms of pricing in urban and rural markets, a new road has to be explored for further strengthening planning of the direction of agriculture, to insure that the rural economy is lively without being chaotic, and that it is regulated without being stifled. In the discussion, everybody stressed the following several ideas for reform: (1) A good job of overall balance. It is organization

and realization of an overall balance in the national economy that the planned economy has to solve. Agriculture is a basic sector in the national economy, and agricultural planning must first of all break through its narrowness in considering only production and procurement to formulate unified plans for production, supply, and marketing. These unified plans also have to be placed within the context of total national economic balance for genuine solution to agriculture's "fundamental" position in the formulation of priorities and norm systems in plans. (2) A firm grip on grain production. Correct handling of the relationship between grain crops and economic crops has long been at the center of the planning of agrcultural production in China. Now various actions have to be taken to stabilize the area sown to grain, to encourage increases in yields per unit of area, and to curb the tendency toward a certain blind development of economic crops. Increase in grain output depends primarily on the tapping of potential from medium and low yield areas, yet consolidation of old commodity grain bases now continues to be of extremely important significance. (3) Readjustment of economic policies. Balanced economic benefits are a major condition for implementation of state plans. Only by solving the problem of overly low efficiency in grain production will it be possible to reduce their growing area effectively. When drawing up state plans, it will be necessary additionally to give consideration to the application of levers such as prices, taxes, loans and public finance, as well as distributions of benefits within the collective economy to readjust economic benefits in all fields concerned (including production, processing, allocation, and marketing of farm products.) Procurement prices paid for farm products require stabilization now; consequently, study is urgently required on improvements in state procurement (or purchase) price base figures, increased prices for excess procurement, and bonus policies, as well as ways of supplying materials used in agriculture in order to readjust earnings between different varieties of grain crops and economic crops and between one economic crop and another, and among farming, forestry, animal husbandry, and fishing to promote proportional, coordinated development of each kind of production. Last year after Zhejiang Province announced limitations on additional prices paid for excess procurement, the structure of the winter-sown area underwent very great change. (4) Commune and brigade enterprises should be made a part of state plans. When summarizing the relationship between commune and brigade enterprises and agriculture, Jiangsu Province pointed out that even though commune and brigade enterprises have an extremely important role in supporting agriculture and in advancing development of the rural economy, a tendency really exists among them to assault state plans. Consequently, it is necessary to make strengthening of planning and management of commune and brigade enterprises a topic for study in the planned agricultural economy. Nanhai County in Guangdong Province used various means such as making contracting an indirect part of state plans, linkage to state-owned plants, and processing of materials brought in from elsewhere to set commune and brigade enterprises on the track of state plans. This achieved a certain amount of success. (5) Perfection of plan management structure. In formulating agricultural production, supply, and marketing plans today, the situation of dispersal of forces with no mutual dovetailing cries out for change; for central government category 1, strengthening of the function of the the overall balance structure is required. County planning departments are the foundation for bringing about all around balance, and they are also the

bond that ties together state plans and producers. Today, however, they are extremely weak and require strengthening with all possible speed. Grassroots political power--the key to carrying out state plans lies in how well communes and brigades are organized. In areas practicing primarily the form of "double contracting" [contracting fixed output quotas and responsibility for specific work tasks to households], perfection of grassroots organization and strengthening of their economic function is particularly important. The nature of command and guidance for quota management has no practical significance below the county level. Shandong comrades believe that "production is the foundation, and procurement is the key; contracts are the guarantee, and prices are the nucleus." (6) Strengthening and bringing into play the main channels in the rural commodity flow area. The position of state-owned business as major channels must be affirmed, and full use made of their leading role among many channels of many kinds. Sichuan created four models in pilot projects for reform of its supply and marketing cooperative system as follows: (1) Merger of commune businesses with supply and marketing cooperatives; (2) transfer to communes of all supply and marketing cooperatives; (3) Practice by supply and marketing coopertives and related units of decentralized joint ventures; (4) Joint ventures by grassroots cooperatives and production teams. Comrades who made the survey believe the third model to be a rather good one. At pilot projects for reform of grass-roots cooperative organization in Jiangsu County in Jiangsu Province, full accounting for shares, enlargement of shares, honoring of bonus distributions, establishment of supervisory councils, changes in operating styles and methods and genuine solution to problems of the masses in "difficulties in buying," and "difficulties in selling" produced very great benefits in revival of the "three natures."

At the discussion, everybody believed that this kind of combined survey was a useful effort whose benefits were as follows: (1) Cooperation vertically and laterally for a concerted attack on problems. Inasmuch as the topics covered by the survey were very large and touched on a very broad area, it could not have been easily completed within a short period of time by the efforts of several people in a single unit. In future, combinations of comrades in pertinent provincial and municipal departments to carry out surveys of fairly great policy importance is required. Research organizations can proceed from this foundation to undertake systematic academic study. (2) Individual characteristics of key points and whole areas. Units participating in the survey used their commonly drafted outline in combination with the characteristics of local areas to select one or two key counties and key problems (or sometimes key products) on which to conduct a survey that probed fairly deeply, and surveyed and reported on the characteristics of each county. This was followed by the rendering of an overall analysis of definite scope to locate things in the nature of laws. Comrades participating in the survey believe that in future continuous observation and study of such points should be maintained so that understandings will be closer to realities. (3) In a situation of heavy responsibility, few personnel, and short time, results can be obtained fairly rapidly and fairly well.

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'BEIJING REVIEW' ON GRAIN PRODUCTION, IMPORTS

HK151016 Beijing BEIJING REVIEW in English No 25, 11 Oct 82 pp 3-4

[Article by economic editor Jin Qi: "Grain and Cash Crops"]

[Text] Are Chinese peasants today so enthusiastic about growing high income cash crops that the country will need to prolong its dependence on grain imports?

Over the last few years China has adopted a series of flexible rural economic policies, such as expanding the peasants' decision-making power in farm production. It also has corrected a previous one-sided emphasis on grain production. As a result, farm production has greatly improved, with the output of cash crops rising measurably.

The total agricultural output value in 1981 was 17.9 percent more than in 1978 (calculated according to 1970 constant prices). Of this, the output of grain rose by 6.7 percent and that of cotton, oil-bearing crops and beetroot increased by 37, 95.6 and 135.4 percent, respectively.

The rapid increases in the output of cash crops can be partially attributed to the liberating effects of current policies on these crops. However, irrational pricing is more significant. Left behind by history, arbitrary pricing practices enable people to profit more from cash crops than from grain. Consequently, the acreage sown to grain in 1981 was reduced by 4.3 percent as compared with that in 1979. This tendency has aroused the concern of the government.

In an effort to stabilize the grain acreage and encourage continued increases in per-unit grain output, the state has strengthened planning and administrative intervention. In addition, other economic measures are being considered to bridge the profit gap between the production of marketable grain and the production of cash crops. To name a few: The amount of grain purchased by the state in grain-producing areas at fixed parity (thus, lower prices) will not be increased, and the amount of grain in excess of the prescribed amount purchased at fixed parity will be purchased by the state at preferential negotiated prices; grain-growers will be accorded preferential treatment in the supply of scarce industrial goods needed in production and daily life, such as chemical fertilizers, certain farm tools and machines and bicycles;

and the profit for cash crops that encroach on the land sown to grain will be appropriately reduced.

It is true that China has increased grain imports in the last few years. But this stems from a too rapid growth in grain consumption rather than a decrease in domestic supplies (as a matter of fact, they are growing). Grain sales in 1981 were 27 percent higher than in 1979. The population growth accounts for some of the increased grain consumption. But the main reason is China's ongoing effort to develop the foodstuff and fodder industries. China imports only a small amount of grain, some of which is used to increase the varieties. Deducting the exports from the imports, the net grain imported in 1981 (the year with the largest amount of imported grain) was only 4 percent of the nation's total grain output.

A populous country like ours cannot depend on imported grain. Our consistent policy has been to rely principally on domestic grain production, and to use the international market only to adjust our deficiencies and surpluses. This policy, I think, will never be changed.

CSO: 4020/11

PROPOSAL ON DEVELOPMENT OF RURAL FOOD INDUSTRIES AIRED

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 8, 1982, pp 47-50

[Article by Chen Yueru [7115 2588 1172], Agricultural Economics Institute, Chinese Academy of Agricultural Sciences: "Brief Discussion of Development of Commune and Brigade Food Industries"]

[Text] Food industries are processing industries using agricultural by-products as raw materials. Development of food industries requires, first of all, agricultural production to provide them with raw materials. We must focus on all around use of all the resources of China's soil to provide ample raw materials for the food industry so that the food industry can develop. Only in this way will it be possible gradually to change the diet and improve the nutrient value of food. Development of the food industry can also energize development of rural economic diversification and commune member household sideline occupations to bring a fairly great change in China's long-standing unitary production structure in which grain has been paramount, establish a good agricultural situation, and bring about a benevolent cycle, thereby further advancing the all-around development of agricultural production. Therefore, in the strategic task of changing the structure of China's agriculture and the structure of food products, development of the food industry holds extremely important significance. In addition, development of the food industry means development of consumer goods production, which not only enlivens markets and enriches the lives of the people for satisfaction of people's requirements for diverse kinds of foods following increase in the people's purchasing power, but also makes the structure of the national economy become more equitable.

Significance of development of the food industry is extremely great, yet we have long neglected development of the food industry. In 1979, gross output value of the country's food industry (including commune and brigade food industries) amounted to only 10.3 percent of the gross output value of the country's industry and 7.6 percent of the gross output value of the country's industrial and agricultural output value. This included an output value from commune and brigade food industries of only 100 million yuan, which amounted to only 4 percent of the gross output value of the country's food industry. An extremely large portion of this was first echelon processing of products, and 80 percent of it was production for the use of communes and brigades

themselves. Between 1978 and 1980, food industry as a proportion of commune and brigade enterprises was 5.6 and 7 percent respectively. Employees numbered only 2.5 percent of the total number of employees in commune and brigade enterprises. Among export products, 76 percent were agricultural product raw materials, with processed foods amounting to only 24 percent. Output value of processed agricultural products for economically developed countries is usually double the output value of agriculture, but in China the output value of processed agricultural goods is, conversely, lower than the output value of agriculture. China's food industry is backward and not commensurate with the needs of daily life for a 1 billion population and development of agricultural economic diversification. For example, food supply for urban industries is insufficient, varieties are few, and quality is poor; food supplies for rural industries are even more monotonous. Particularly in out-of-the-way mountain regions and in border regions where there is virtual no food supply for industries, and where the soy sauce, vinegar, and such condiments needed by the people in their daily lives require a round trip of several tens of li to the county seat. Because of the lack of development of the food industry, on the one hand inadequate supply of food to industries has occured while, on the other hand, some raw materials cannot be sold. For example, in many places it is difficult to sell hogs or rabbits; in mountain regions, large quantities of indigenous products or resources that grow wild rot where they are; in areas where their production is concentrated, large quantities of potatoes mold and rot. Every year 20 percent of fresh fruit rots, and during 1980 20,000 tons of citrus rotted in Sichuan. During the past 2 years output of cottonseed and rapeseed has increased tremendously, but because of a shortage of processing capacity they could not be processed promptly and their oil output rate declined. In pastoral areas, cows milk and goats milk is fed to hogs. Annually between 300,000 and 400,000 tons, or 10 percent of total output of aquatic products spoil. Fish in hand does not reach the mouth. Producers of raw materials incur losses because of this, which dampens peasant enthusiasm and has led in the past to ups and downs in the production of agricultural products, and slow development of economic diversification.

From this may be seen that agricultural economic diversification and the food industry are both mutually restricting and mutually promoting, objectively requiring a linking of the farming, breeding, and processing industries. Moreover, development of commune and brigade food industries is an important way in which to promote the linking of the farming, breeding, and processing industries. Operation of processing industries in places that produce raw materials and hastening construction of raw materials bases to form a continuous process of farming, breeding, and processing is consistent with an orientation of comprehensive farming, industrial, and commercial operations.

The role of commune and brigade food industries in promoting agricultural production is also manifested in the following several main ways:

1. Commune and brigade food industries can more effectively use the wastes left over at the time of production for livestock feed or for direct use in fertilizing the soil, thereby returning natural materials to nature. For example, the Xinqiao Commune Food Plant in Songjiang County, Shanghai annually

processes more than 18,200 tons of frozen chicken for export and is able to supply 15 tons of chicken manure monthly for direct use in fertilizing the soil. It can provide a total of 1,370 tons of chicken intestines containing manure over a 10 year period for supply to every hog raising farm in the commune to feed their hogs, the hog manure being used as fertilizer for development of agricultural production. Baoshan Commune in Panshi County, Jilin Province uses bald hills and barren slopes to grow fruit trees, which provide raw materials for the commune canning plant, leftover skins, residues, and slop being fed to livestock, the livestock manure providing fertilizer to the fruit trees, in turn. This use of farming to provide raw materials for the processing industry, and the processing industry to give impetus to the breeding industry, and the breeding industry promoting, in turn, the farming industry in a benevolent cycle is something that food processing industries far removed from raw material production areas cannot do. When farm products are assembled in cities for processing, they may cause urban pollution and put and end to the balanced mutual exchange of nutrients between the natural world and mankind. As Marx noted, "The integral part of the soil consumed by man in the form of clothing and food cannot be returned to the soil, thereby damaging the perpetual natural condition of the soil's enduring fertility." ("Complete Works of Marx and Engels" Vol 23 p 552).

2. Commune and brigade food industries can open production avenues for agriculture and take care of surplus workforces. Today there is a general 30 percent surplus of workforces in China's rural villages, "If these people who have been squeezed out of agriculture are not to remain out of work or be forced to congregate in cities, it is necessary that they engage in industrial labor in rural villages." ("Complete Works of Marx and Engels," Vol 19, p 369). The food industry is a labor intensive industry that can provide for a substantially greater workforce for the same amount of capital. Food industries energize economic diversification and development of commune member household sideline occupations, promote progress in production in depth and breadth, and provide an outlet for surplus workforces. Were rural food industries properly concentrated in rural market towns where communes exist, they would give impetus to small city and town construction, and still greater numbers of the surplus workforce could be taken care of. Rough calculations show that if every one of the rural market towns where more than 50,000 communes in the country are currently located were able to absorb an average of 2,000 people, it would be possible to provide employment opportunities for more than 100 million surplus rural workforces, and they would not be forced to congregate in cities.

It is characteristic of agricultural production that the process of natural reproduction and the process of economic reproduction are intertwined. The production period is much greater than the labor period, and there are separate slack and busy seasons in agriculture; however, inasmuch as the busy seasons and the slack seasons differ in industrial production and agricultural production, the same workforces may be switched back and forth into agricultural and industrial production. Workforces can be transferred to economic diversification tasks of a seasonal nature so that the workforce is fully and equitably used, producing more products for society.

3. Commune and brigade food industries can make full use of resources. Commune and brigade food industry local procurement of materials and local processing favors use of dispersed odd bits and pieces of resources, and other resources, discarded resources, and wild growing resources that large industries do not use can be comprehensively used, and new uses for foodstuff raw materials can be found. Take tuber crops such as potatoes, yams, and cassava, for example. In addition to processing into starch and noodles, they may be processed into citric acid, alcohol, lactic acid, glucose syrup, and amino acids. If tuber starches and cornstarch are further processed, maltose, glucose, and fructose can be produced. Fructose can be produced at lower cost than cane sugar; it is sweeter; and it has wider uses. Through processing, the usefulness of tuber raw materials is greatly heightened. Yet another example is the cake residues that were formerly used directly for livestock feed or fertilizer, from which concentrated protein and separated [3863 2649] proteins may be extracted through deep processing. From cottonseed cake cotton phenol [2758 1568] (a protein) can be extracted. Cottonseed husks, corn cobs, wood shavings, and bagasse, which had been used as fuel or processed as waste materials, have now begun to be used in rural villages to produce edible fungus. Areas that produce large dates use rotten dates for processing into date essence [2764 4737] a perfume indispensable to the manufacture of cigarettes. Examples in the realm of food industry use of plentiful wild growing resources include use by Xiangtun Commune in Dexing County, Jiangxi Province of vitex cannibfolia which grows all over the local mountain region, and which can be processed to produce vitex cannibfolia oil capsules (for the treatment of chronic bronchitis), which is marketed widely in all of the countries of Southeast Asia. Henan, Hubei, and Sichuan provinces used actinidia berries for processing into preserved fruit, liqueur, and fruit juice to take advantage of local natural resources, to expand use of raw materials, and to promote development of resources.

4. Development of commune and brigade food industries is a good way in which to promote the specialization of agriculture and to build raw materials bases. Following institution of production responsibility systems in agriculture, specialized teams, specialized households, and specialized workers made their appearance. Accompanying development of economic diversification has been the development of food processing industries funded and operated by commune and brigade collectives and by commune members. Storage, cold storage, packaging, and transportation industries associated with the food industry, as well as departments that generate raw materials, provide the means of production, and supply services showed corresponding development. These functions, which had formerly been a part of agriculture, gradually separated from agriculture to become specialized operations with the result that a steady decline occured in that part of farm products and raw materials going directly into consumption, and products of a commodity nature steadily increased, thereby strengthening the reliability of each individual link in the production of end products. Division of labor and division of industries gradually developed, and this inevitably required coordination. Coordination created, in turn, conditions for increased specialization. A look at the freezing plant at Chengguan Commune in Wuqing County, Tianjin shows this plant to have an annual processing capacity of 900 tons, which has led to construction of a raw materials base, as a result, the local chicken raising industry

developed from three production brigades and four chicken farms providing 96,000 chickens in 1971 to 112 production brigades and 145 chicken farms plus more than 1,700 commune member households raising a total of 1,138,000 chickens in 1980. The chicken raising industry sparked the marten raising industry and the rabbit raising industry with the result that the breeding industry throughout the county gradually became regionalized and specialized. Specialization promoted development of commodity agricultural products and commodity exchanges and requiring striking growth in the close linking of transportation and marketing departments. This resulted, in turn, in development toward the direction of a high level of link up with the integration of agriculture, industry, and business for farming, breeding, processing, and marketing. Restructuring of the organization and management of agricultural production gave further impetus to development of the economic diversification of agriculture.

5. Commune and brigade food industries can spark development of household sideline occupations. In areas in which production or work tasks have been contracted to individual households, raw materials for the food industry come primarily from commune member households, and some agricultural production tasks also lend themselves to commune member households. Commune member households use their spare time or supplementary labor forces, and use space in front of or behind their homes, odd bits of wasteland, depressions, or odds and ends of water surfaces to produce raw materials for the food industry. Moreover, the food industry, in turn, opens marketing avenues for commune member household sideline occupation products and removes commune member concern about not being able to sell their products. Food industries also provide for commune member household sideline occupations stud livestock and poultry and mushroom spores, promote scientific farming, scientific raising of animals, and knowledge of scientific management, and provide necessary economic support. For example, formerly commune members in Bocheng Commune, Gaomi County, in Shandong Province had to go through a procurement point set up by the foreign trade sector in order to sell rabbits. From the procurement point, the rabbits went to a grassroots supply and marketing cooperative, and the supply and marketing cooperative transferred them to the County Foreign Trade Bureau, which transferred them to Qingdao for processing. There were numerous procurement unit circulation links, and they attempted to run down quality in order to hold down prices paid and pass on to peasants the increased expenses and losses, with the result that the rabbit raising industry could not develop. Now the commune is running the freezing plants, and in addition to signing contracts with commune member households stipulating the quantity to be sold annually and the bonus system, they have withdrawn 30,000 yuan from plant profits to help hardship households develop household sideline occupations and to provide more than 20,000 tons of fish meal feed to them; they have also sold 60.000 chicks on credit, loaned commune members 3,500 female rabbits for breeding, have printed and distributed books on the raising of livestock and poultry and prevention and control of epidemic diseases, and have sent technical personnel a lecture circuit and to give on-site guidance. They have thus achieved a combination of plant breeding and household raising or household breeding and household raising livestock and poultry, and households raising the three large flocks

(chickens, ducks, and rabbits) number 50 percent of the total. Most households have raised eating (or laying) chickens and rabbits, with the number of specialized households developing to 282 and the number of specialized workers climbing to 4,400. Seven commune households have realized annual net profits of more than 3,000 yuan from the breeding industry. Last year 166,000 head of livestock and poultry of various kinds were raised by commune member households, a 142 percent increase over 1980.

6. Commune and brigade food industries have dovetailed farming, breeding, and processing to raise labor productivity rates, to reduce losses and waste in the circulation process, to reduce the "price scissors," and thereby increase both collective and commune member income. Local processing has brought about mutual cooperation among farming, the breeding industry, and the processing industry for an increase in productivity. Inasmuch as certain agricultural raw materials are large in volume, light in weight, and very full of moisture making them difficult to haul, prone to spoilage, and difficult to store, commune and brigade processing industries immediately instituted processing at the production site so that "commodities rapidly went from one production stage to another production stage or, in other words, the intervening time was shortened for a reduction in the waiting time of intervals between one production stage and another, that is to say, a shortening of the transfer from one production stage to another production stage ("Complete Works of Marx and Engels," Vol 26, p 314) for a reduction in losses and waste, a saving in transportation, and expenses for circulation links. Additional, development of commune and brigade food industries can leave within the farming industry some of the net income created by agriculture that is transferred to the industrial and business sector as a result of the existence of the "price scissors," and increase accumulations of agricultural capital and commune member income.

A look at the role of the aforementioned commune and brigade food industries in promoting agricultural production shows that commune and brigade food industries should be made an important integral part of the acceleration of food industry development nationally. The advantages, the raw materials, and the markets for development of the food industry are in rural villages. Though technical facilities and size of state-owned food industries are rather superior, the advantages to industry conceal the harm done to agriculture. In all the countries of the world with a developed food industry, the focus of development is on rural villages. While assuring supplies of raw materials to large and medium size food industries, we must act step by step to gradually have commune and brigade enterprises process agricultural byproducts that lend themselves to rural processing. Development of the food industry requires that the state, collectives, and individuals go forward together, and most important should be development of the collective economy. There should be both large modern industries, and small workshops that serve commune member lives in a combination of the large, the medium, and the small. Though commune and brigade food industries are rather small and scattered today; nevertheless, in addition to the many advantages these small enterprises possess as discussed in the foregoing, they also hold advantages in adaptation of general methods to local situation, in doing things simply and thriftily, in being flexible and varied, in not requiring state investment, and in not consuming commodity grain.

In order to correctly handle the sources of raw materials for development of food industries by the country, the collective, and individuals, stipulated base figure procurement methods must be instituted for food industry raw materials. All jurisdictions should conscientiously institute the State Council regulations contained in "In Instituting Unified Procurement and Assigned Procurement of Agricultural Byproducts, the State Should Stipulate Base Allotment Figures for Provinces, Municipalities, and Autonomous Regions," and institute them at the grassroots. The setting of base procurement figures is tantamount to setting quotas, and it both assures state-owned processing plant needs for raw materials and provides self-determination to communes and brigades in processing, production, distribution, and marketing to arouse the enthusiasm of peasants for development of production. Looked at in terms of the results in the macro-economy, by doing things this way not only can there be no diminution of state control over things, but rather great increase. Right now 10 provinces have set base procurement figures in varying degrees for agricultural products, and they all reflect this policy's promotion of the development of agricultural production.

Development of the food industry requires giving impetus to economic association, the association solving problems in insufficiency of funds, skills, and raw materials so that individual advantages can be brought into play. Various kinds of joint partnership ventures between industry and farming, farming and business, communes and brigades, brigades and brigades, and among commune members can be used. Deserving of particular attention is joint ventures by production teams, which link in a single body for all-around development production team economic diversification, commune member household sideline occupations, and commune and brigade enterprises, making it possible as well for the peasants to obtain greater material benefits directly from commune and brigade enterprises. Linking of commune and brigade enterprises with state-owned food plants, with production, supply, and marketing being made a part of plan can also carry skills into the countryside and products into cities, and link primary processing in rural villages with secondary processing in cities.

Food industries cut across light industry, grain, foreign trade, business and supply and marketing sectors, so only by proceeding from the situation as a whole, through division of labor and cooperation, and close coordination can the strengths of each be brought into play. Development plans should be formulated at the county level, taking into account both agricultural zoning and equitable distribution of operations. Key products should be developed on the basis of local resources, and a good job should be done of market forecasting and scientific and technical situation reporting to prevent blind action. Commune and brigade enterprises should convert to food processing industries those enterprises that are to be converted in the process of readjustment so as to be able to use existing plant buildings and facilities, and save on investment. Departments concerned and state-owned food plants should arrange for and give support and assistance in equipment, skills, and supply of supplemental materials for development of commune and brigade food industries. In the course of development, commune and brigade food industries should do a good job of enterprise reorganization, and improve administration and management so that they are able to make a contribution to development of economic diversification and commune member household sideline occupations.

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PROBLEMS, PROSPECTS IN FEEDING LIVESTOCK EXPLORED

Beijing NONGYE JINGJI WENTI [PROBLEMS IN AGRICULTURAL ECONOMICS] in Chinese No 8, 1982, pp 58-61.

[Article by Animal Husbandry Bureau, Ministry of Agriculture, Animal Husbandry and Fishery: "Some Circumstances Pertaining to Livestock Feed Resources and Development of the Livestock Feed Industry"]

[Text] Livestock feed is the material foundation for development of a livestock industry. Both domestic and foreign experiences have shown that the level of livestock feed production determines, to a very large extent, the scale and speed of development of a livestock industry. Accompanying develop of China's "four modernization" construction and gradual improvement in the people's livelihood has been a demand for increased production of meat, eggs, milk, and such livestock products, and this has required that livestock feed work be placed in the position it deserves in the national economy. A look at the current situation in China shows that many places have not accorded livestock feed work sufficiently serious attention, and they have not given attention to the production of compound livestock feeds that have all nutrients in abundance to meet the needs of livestock and poultry growth and development. In national terms, the basic state of affairs in livestock industry production as a whole is as follows: long periods of growth, slow weight gain, slight egg production, low milk yields, poor quality of livestock products, high raising costs, and low livestock feed efficiency. In advanced livestock industry countries, the rate of removal from inventory for hogs is about 150 percent, but in China it has fluctuated around 60 percent for many years. In countries gaving a developed livestock industry, for each jin of weight gain in hogs, about 3.5 jin of full rate compound feed (containing 60 to 70 percent grain) is consumed, but in China half again as much grain is used, and the lean pork rate is low. As of the end of 1979, China had 319.7 million hogs in inventory and produced 20.03 billion jin of pork (10,015,000 tons) of pork, while the United States had 60.1 million head in inventory and produced 7 million tons. Average amount of pork output per head in inventory at year's end was 31 kilograms for China and 116 kilograms for the United States. Beijing's factorized chicken raising sets a high standard for China, but the amount of feed consumed to produce 1 jin of eggs is 12 percent higher than in countries with a developed livestock industry (2.6:1 for Beijing and 2.5:1 abroad).

1. Situation in Development and Use of Livestock Feed Resources:

(1) Feed grain use is irrational, feeding being done with whatever happens to be available. China uses about 10 percent of its total grain output as feed grain for development of the livestock industry. In 1980, feed grain amounted to 70.6 billion jin of which feed grain withheld by production teams amounted to 54.8 billion jin or 77.6 percent, and state award sales of feed grain for sales of hogs to the state amounted to 11.500 billion jin or 16.3 percent. Feed grain used in rural villages for the raising of hogs accounted for 94 percent of the total, and if 14 million jin of grain husks (or 30 percent of the national output) is added to this, total processed compound feed amounted to 100 billion jin. Converted at a fairly low feed to pork ratio (4:1), 25 billion jin of pork was derived, which was 2.5 billion jin more than the pork output for the year. Survey done in Qingfu County in Shanghai showed that after use of mixed feed was promoted, the level of feed consumption gradually declined during the past 3 years. A comparison of 1980 with 1978 showed that in this county the amount of feed used per fattened hog fell from 550 jin to 475 jin, a decline of 13.6 percent. Calculating on the basis of the 340,000 head of fattened hogs marketed in 1980, that amounted to a saving of 25.5 million jin of feed, a saving for the province of more than 3 million yuan in feed expenses. By raising the return on feed by 10 to 15 percent, the fattening period can be shortened by 2 to 3 months. Building of compound feed processing plants or mixed feed processing plants is an effective way of using limited feed grain resources to change the feeding of a single kind of feed and increase output of livestock products. Yet, in 1980 China's annual output of mixed feed (a considerable portion of which was simply mixed up) was only 820,000 tons, or about 2 percent of the country's total output of feed, somewhat more than 30,000 tons of which was fairly full rate compound feed.

(2) Use of paddy rice to raise hogs in most areas in the southern part of the country is very senseless. A comparison of nutritional value shows the crude protein content of paddy rice to be from 20 to 35 percent lower than for corn and wheat, and digestibility lower by between 10 and 20 percent. Departments concerned in Shanghai have made an analysis that showed that during 1965, 20 percent of the feed withheld in the city was corn and 11.4 percent was early rice; the remainder was wheat and naked barley. On average, every 100 jin of livestock feed contains 57 feed units (1 feed unit equals the nutritional value of 600 grams of digestible starch). By 1975, more than 75 percent of the feed was paddy rice, and the amount of wheat and naked barley had dropped to 25 percent. Virtually no corn was fed (only 0.7 percent). On average, each 100 jin of feed contained 46.2 feed units. For the same 100 jin of feed withheld, there was a difference of 11 feed units or a decrease by almost one-fifth in the nutritional value. Incomplete statistics show that in Hubei Province, more than 4 billion jin of paddy rice is used in livestock feed annually; in Guangdong Province it is almost 2 billion jin. Comparison of quantities used as feed shows that, on average, each mu of dryland paddy has 97 fewer feed units than corn (nutritional value calculated on the basis of average output for the 10 year period 1964-1973 by departments concerned in Shanghai).

(3) Use of cake residues for livestock feed has yet to be generally promoted. Of all cake residues, those showing most promise for use in livestock feed are cottonseed cake and rapeseed cake. In 1980, China produced 6 billion jin of cottonseed cake, and 3 billion jin of rapeseed cake. These two kinds of cake residues contain between 30 and 40 percent crude protein, and the digestible energy in them is close to 3,000 kilocalories per kilogram. They are a major source for protein livestock feeds. Inasmuch as it takes quite a while for these cake residues to be converted into manure, since their conflicting use in livestock feed has not been well resolved, since the masses do not yet fully understand techniques for their detoxification, and since there are as yet no genuinely effective methods whereby chemical fertilizer is offered in exchange for cake residues, most cottonseed cake and an overwhelming portion of rapeseed cake is used directly as fertilizer. Statistics from the former Ministry of Grain show that in 1980 cake residues resulting from processing of oil-bearing crops by grain departments nationwide amounted to more than 5 billion jin. This was in Beijing, Hebei, Shanxi, Liaoning, Heilongjiang, Jilin, Shanghai, Jiangsu, Shandong, Sichuan, and Henan, but only 400 million jin was retained for use as livestock feed. If it were possible within a short period of time to use half (4.5 billion jin) of the cottonseed cake and rapeseed cake produced in the country for livestock feed, and add it to daily feed at a 15 to 20 percent rate, about 22.5 to 30 billion jin of compound livestock feed could be made. Figuring 500 jin of compound feed per fattened hog, the protein feed problem could be solved for between 43 and 60 million head or between 30 and 40 percent of the fattened hogs removed from inventory throughout the country.

(4) Relatively poor attention given to the processing, movement, storage, and use of crop stalks and stems. In China only about 30 percent of the farm crops and the stalks and stems produced per mu of land are used for food (including those eaten by livestock or poultry and converted into meat, eggs, and milk.) More than half are used for fertilizer or fuel. More than 730 billion jin of major farm crop stalks and stems suitable for use as livestock fodder are produced in the country (of these, peanut vines contain about 10 percent crude protein, and the stalks of pulses contain 7 percent). British researchers believe that in long range terms, stalks and stems should be regarded as major livestock fodder. Denmark is now studying satisfactory methods for promoting the processing of stalks and stems. To proceed from China's realities, how to deal with cyclical transformation relationship among livestock feed, fuel, and fertilizer requires study, design, and production by the machine manufacturing sector of equipment suited to the processing, mixing, and storage of various kinds of stalks and stems, methane research departments, animal husbandry research units, and production departments jointly coordinating for a good job of rational use of crop stalks and stems.

(5) North China's pastoral areas contain 3.3 billion mu of useable grasslands on which there are now more than 94 million cattle, horses, and sheep. This converts to more than 188 million sheep units, or 1 sheep for every 17 mu of grassland. But administration and management, conservation and improvement, and rational use have not been done well, resulting in misuse of pasturelands and overgrazing; the grasslands have been seriously damaged and degenerated.

Today a normal year's harvest amounts to about 300 billion jin of dry green hay, a 70 percent utilization rate for which amounts to only 210 billion jin or an average 1,100 jin per sheep, which is only 3 jin of hay per day (the normal requirement is 5 jin), a 40 percent shortage. When disasters strike, large number of livestock are likely to die. Were it possible to strengthen the building of the grasslands in a planned way and increase the current hay output to 400 jin per mu for a hay output totaling somewhat more than 1.3 trillion jin, 1 sheep per 7 mu of grassland could be raised, and the number of livestock could be more than doubled. Were it possible to increase hay output to the levels attained in foreign countries, 1 sheep per 2 to 3 mu could be raised and the potential would be much greater. Problems in building and using grassy mountains and grassy slopes in farming areas are also very numerous, and a tremendous potential for development exists.

(6) Green manures are plants belonging to the pulse family whose protein content is fairly abundant. In dry Chinese milk vetch, for example, the crude protein content is a general 20 to 30 percent. Computations done by agricultural departments in Jiangsu Province show 10 million mu of winter green manure in the province for yields averaging 4,000 jin per mu or a total of 40 billion jin, the digestible energy from which is the equivalent of 5 billion jin of barley and the crude content the equivalent of 3.8 billion jin of bean cake. In 1980 the area of the country sown to green manure was 110 million mu for an extrapolated output totaling 440 billion jin, having a digestible energy equal to that of 55 billion jin of barley, and crude protein equal to that of 41.8 billion jin of bean cake. Were half the figures to be used, the digestible energy would be equivalent to 27 billion jin of barley, and the crude protein would be equivalent to that of 20 billion jin of bean cake. Furthermore, the potential for increased green manure crop yields is very great. With just a little improvement in field care, yields could be increased manifold. This is an important source of plant protein livestock feed. Right now most important is research to solve problems in storage methods (green manure crop green storage techniques are not up to standard). In long range terms, with gradual solution to energy problems and gradual improvements in techniques for using solar energy, corresponding breakthroughs on problems with rapid drying techniques and cost problems may be possible. This is a livestock feed resource peculiar to China, and prospects for its use are extremely hopeful.

(7) Purple flower alfalfa is often called by the beautiful name, "king of the pasture grasses." When dried, it has a crude protein content of between 18 and 28 percent. It has been grown in China for more than 2,000 years, and it has been closely related to the breeding of superior local breeds of domestic livestock. The common oxen of Qinchuan, for example, are closely linked to the feeding of alfalfa for a long time by the local peasants in Shaanxi Province. However, it has not been given the serious attention it deserves in recent years, with the result that varieties have become mongrelized and have degenerated, and the area sown has gradually diminished over the years. It is suggested that in major purple flower alfalfa growing areas (Shaanxi, Shanxi, Shandong, and Xinjiang) agriculture and animal husbandry research units should include among their topics for research the breeding, farming, and prevention and control of diseases and insect pests

of alfalfa. Machine mnaufacturing departments should research, design, and manufacture equipment suited to local areas for use in sowing, harvesting, and processing so as to solve problems in prompt harvesting and storage as well as in pulverized alfalfa hay and granular feeds.

(8) Tree leaves can provide livestock feed that is rich in vitamins and protein. Analysis of data has shown a protein content of more than 20 percent in purple plumed scholar tree leaves. The crude protein content of the leaves of peach, apple, apricot, and pear trees is more than 10 percent. Between 1976 and 1981, Beijing pulverized 22.91 million jin of locust tree leaves it collected. This was equivalent to having received 7 million jin of crude protein. The Jiangsu Provincial Poultry Research Institute mixed 5 percent pulverized leaves into the compound feed it fed laying hens for a saving in costs of 3 yuan per ton of feed. Results of a study of the province's livestock feed resources and their use carried out by Jilin Provincial Science Commission organizations showed that 10 billion jin of pulverized leaves could be made from the leaves of scrub woodlands nearby rural villages alone. If the leaves from coniferous trees and broadleaf trees cast aside in cut over forests were to be pulverized, 5 million jin could could be obtained from just 1 percent of the cut over forests.

(9) The blook, bones, entrials, feathers and hair of animals as well as silkworm chrysalises, and miscellaneous inedible fish etc. can be made into animal protein livestock feed. According to survey data from the Wuxi Amalgamated Meat Processing Plant, the waste products (blood, bones, feathers, and hair) from the 400,000 hogs and 1 million fowl slaughtered there annually amounts to about 3 million jin, which can produce 300,000 jin of blood powder, 67,000 jin of powdered hair and feathers, and 180,000 jin of bone meal. A survey done by departments concerned in Tianjin shows that except for the 2 million jin of the 4.5 million jin of fresh blood from hogs, cattle, and sheep produced in the city annually that is used for food and industrial purposes, the remainder flows away or is collected for use as fertilizer. If it were turned into 400,000 jin of powdered blood, that would be the equivalent of 320,000 jin of crude protein. China has more than 200 amalgamated meat plants with a butchering and processing capacity of more than 100,000 head per year. If each of these plants added a processing shop capable of producing 100 tons of animal feed yearly, the annual output would be more than 20,000 tons, enough to provide the protein feed needed to fatten 1.6 million hogs or feed 3.6 million laying hens.

(10) Use of industrial byproducts and leftover bits and pieces has yet to receive sufficiently serious attention in China. In the United States, the quantity of food industry-processed leftover bits and pieces amounted to 8.3 million tons in 1974. According to Japanese briefing materials, 12 to 14 percent crude protein can be obtained from the use of bagasse for livestock feed. Thailand also uses bagasse (or citrus fruit leftovers), which after being fermented with chicken dung is used as feed for beef cattle. China annually produces about 5 million tons of bagasse (the water content of which is 50 to 55 percent), so there is a sizeable source of supply. Leftover from the processing of fruits also contain a considerable amount of crude protein. Examples include pineapple skins (crude protein content of 8.2 percent),

leavings from making grape wine (content of 9.1 percent), and banana skins (10.6 percent protein content), all of which are close to the crude protein content of corn. Other things include medicinal residues (terramycin, tetracycline, and aueromycin residues) which have a crude protein content of from 25 to 35 percent, close to the protein content of cottonseed cake and rapeseed cake. For these resources that can be used for livestock feed, the joint cooperation of light industrial, food and pharmaceutical industrial departments concerned is required for the organization of their processing for use. As a result of development of fermentation techniques, conditions already exist within China for the use of molasses (a leaving in sugar refineries) to produce lysine. In addition, technology for synthesis have also been mastered by relevant departments in China. Use of petrochemical industry intermediate products (such as acrolein, methyl mercaptan, and sodium cyanide) for the production of methionine synthetically is also possible.

2. Suggestions on Development of China's Livestock Feed Industry:

Inasmuch as China's financial and material resources are limited, the building of a complete livestock feed raw materials industry and livestock feed additives industry the way developed countries have done together with a matching livestock feed processing industry is clearly not realistic, and difficult to do. In view of China's characteristics, the building of a livestock feed industry must make full use of the initiative of each department of central and local governments and of communes and production brigades to begin building first small then large, and going from low grade to high grade to form an organic livestock feed industrial complex gradually. The building process should link large, medium, and small scale, with the medium and small predominating, with encouragement being given to communes and brigades to contribute funds themselves to build small scale livestock feed processing plants. In China 95 percent of the livestock feed grain is used in rural villages, and grain requirements can be met locally through the adaptation of general methods to local situations. The husks and cake residues required can be supplied locally. The overwhelming majority of raw materials come from communes and production brigades, and full use can also be made of green feed resources as rural livestock raising conditions permit. Requirements of these types of plants for trace ingredients to be added (vitamins, amino acids, and growth promoters) would be very low; consequently with a stable supply of raw materials, little change in varieties, and a simple and readily managed compounding of livestock feed, production capacity could be developed very rapidly. There could even be use made of mobile livestock feed processing equipment to take in raw materials for processing and providing service to brigades, villages, and households. In short, many forms could be used, with the adoption of no single model so that within a relatively short period of time the mixed feeds and compound feeds so urgently needed by collective livestock farms, specialized households, and key households could be produced and supplied in order to increase the livestock. Many places can also make use of all sorts of byproducts and leftovers by building blood powder plants, bone meal plants, feather and hair pulverization plants, fish meal plants, fruit residue livestock feed plants, hay pulverization plants, etc. to make full use of local labor and agricultural feed resources and animal and plant feed resources.

The state should concentrate some material and financial resources to operate key livestock feed plants that local resources cannot operate, the production of additives most importantly, to do a good job in serving locales. These industrial plants would be the mainstays of China's livestock feed industry, and would produce principally the pre-mixed livestock feeds containing additives (such as methionine and lysine) scale livestock feed plants to manufacture full rate compound livestock feeds, thereby spurring development of the entire livestock feed industry.

Production of pre-mixed livestock feeds containing additives would simplify the technicological processes in livestock feed plants, cut capital counstruction investment and transportation expenses, and would be an effective way in which to hasten building the livestock feed industry, to improve product quality, and to accelerate the transition to production of full rate compound livestock feed. In order to meet the needs of egg, milk, and meat production, large and medium size cities should similarly build livestock feed processing plants. On the basis of the experience of the Beijing Municipal Animal Husbandry Bureau's Stud Poultry Company, the building of one stud rooster farm plus one (or two) farms with 200,000 laying hens, plus one livestock feed plant would return 1.4 million yuan annually on investment, and would provide 4 million jin of chicken eggs. We should act on livestock industry production plans for large and medium size cities as integrated livestock, industial, and commerical enterprises develop to build group after group of livestock additive pre-mixed feed plants and livestock feed processing plants over a period of time. In building the plants, we should make sure that there is no duplication of construction. Production needs for which other departments have not made arrangements but which local areas urgently need should be taken care of by farming and livestock industry departments, with joint operation or some other method used to solve problems in cooperation and coordination involving raw materials, funds, and techniques.

(Abridged for publication in this magazine)

9432
CSO: 4007/600

DEVELOPMENT OF NEW SWEET POTATO DETAILED

Beijing GUANGMING RIBAO in Chinese 22 Aug 82 p 2

[Article: "Shen Jialian [4141 1367 1670], Yuan Baozhong [5913 1405 1813], and Zhu Chongwen [3612 1504 2429] Cultivated a New Variety of Sweet Potato; 'Xu Shu 18' Has Become the Champion of Varieties Bred by Our Nation; It Has Been Popularized Over More Than 18 Million Mu Throughout the Nation and Has Received the State's First-Class Invention Award"]

[Text] Researchers Shen Jialian [4141 1367 1670], Yuan Baozhong [5913 1405 1813], and Zhu Chongwen [2612 1504 2429] of the Agricultural Sciences Institute in Xuzhou Prefecture [Jiangsu Province] have cultivated a new variety of sweet potato, the "xu shu 18." They have made a major contribution to the development of the production of sweet potatoes in our nation. Recently, they received the state's first-class award for inventions. "Xu shu 18" has been popularized outside the experimental nursery for less than 6 years. It has been rapidly popularized over more than 18 million mu in northern China and central China to become the champion of the varieties cultivated by our nation ourselves.

Shen Jialian, Yuan Baozhong, and Zhu Chongwen spent over 20 years developing this new variety. It was only 9 years ago that they selected one from the several thousand strains in the experimental nursery. They labeled it "73-2518," meaning that it was sown in 1973 and numbered 2,518 in order. The last two numbers refer to the Japanese variety "sheng li bai hao"--the goal to be surpassed by the several thousand strains in the nursery.

"Sheng li bai hao" was developed in Okinawa, Japan. Because of its high yield and its broad adaptability, it had occupied the leading position among our nation's sweet potato varieties for a long period. One day in 1957, a leading comrade of the Ministry of Agriculture told Shen Jialian: "The sweet potato variety is still Japanese; we must think of ways to develop our own good varieties! This is what Premier Zhou has said." Encouraged after hearing this, Shen Jialian answered decisively: "Good. I will not close my eyes when I die if I do not beat 'sheng li bai hao!'"

In 1962, he and Yuan Baozhong and Zhu Chongwen were transferred from the Chinese Agricultural Academy to the Agricultural Sciences Institute in Xuzhou Prefecture. The three cooperated closely. Up to the time of the Cultural Revolution they had developed over 10 superior varieties and served an important function in production.

The final push began in 1972. At the time, Shen Jialian and Yuan Baozhong had collected over 460 sources of domestic and foreign sweet potato varieties. They studied the characteristics of each variety closely, and then they selectively used the superior parents for sexual crossing. In the spring of that year, they arranged over 40 pairs and conducted experiments. By harvest season, "73-2518" was selected for its outstanding comprehensive achievements. The leaves on the stem grew early, it produced sweet potatoes early, the sweet potatoes enlarged quickly, the sweet potatoes grew in concentrated bunches, the growth during the latter period was strong, there were many sweet potatoes, and the comprehensive properties were far ahead of the other varieties. Shen Jialian and the others examined it strictly. The results were as follows: It surpassed the "sheng li bai hao" in almost all indices; the yield was 40 percent higher than that of "sheng li bai hao!" The hope of surpassing "sheng li bao hao" had finally been realized!

Miracles continued to come forth. In 1976, the Agricultural Sciences Institute in Tai'an Prefecture [Shandong] planted "73-2518" at test points. In that year, root rot disease was widespread in Shandong. This type of destructive disease causes the roots of the sweet potato to rot. "Sheng li bai hao" also wilted, but "73-2518" continued to grow prosperously and produced a lot of sweet potatoes. After many observations and much analysis, "73-2518" was selected as the best superior variety at present that is highly resistant to root rot disease. In the second year, the Agricultural Sciences Institute in Xuzhou Prefecture also arrived at the same experimental conclusion.

The high-yielding and highly resistant "73-2518" quickly became popular in northern China and central China. For convenience, its name was shortened, and in 1976 it was officially renamed "xu shu 18" instead of "73-2518." It signifies a new breakthrough in our nation's breeding of sweet potatoes.

As "xu shu 18" was born, the history of a variety cultivated by our nation ourselves occupying the leading position in sweet potato production began. The breeding work by Shen Jialian, Yuan Baozhong, and Zhu Chongwen again opened a new page. They told reporters that "xhu shu 18" still has some shortcomings, such as its weak resistance to black spot disease and its ordinary taste. They are determined to cultivate an even better variety than "xu shu 18."

9296
CSO: 4007/595

RURAL COMMUNE'S WORK SYSTEM ACHIEVEMENTS NOTED

HK020606 Beijing CHINA DAILY in English 2 Oct 82 National Day Supplement p 5

[Article by Hu Wenshun, secretary of the Shuangqiao People's Commune Communist Party Committee]

[Text] Shuangqiao people's commune in the Chaoyang District is one of Beijing's rural communes. It has 12,846 households who make up 47,719 people, and 52,000 mu (3,466 hectares) of farm land. There are 14,000 laborers and 7,000 factory and sideline workers. It is composed of five rural management areas with 62 production brigades.

The commune's chief concern is agriculture but at the same time, it is trying to develop in many fields. It has set up offices or stations in charge of industry and sideline activities, animals and fishery, hydropower, science and technology. There is also a hospital and a school for workers.

Great changes have taken place since the third plenary session of the Communist Party's Central Committee in December 1978. The establishment of various kinds of responsibility system was what the people wanted.

In only 3 years, major economic gains have set historic records. Agricultural and industrial gross income in 1981 amounted to 72.94 million yuan, an increase of 78 percent over the 40.94 million yuan in 1978. Average annual distribution per capita was 370 yuan, increased by 90.7 percent (194 yuan in 1978).

For 3 years running, Shuangqiao's farming, tree planting, animal raising, fishery and sideline production have all expanded, while crop yield has stabilized above 35 million jin (17.5 million kilograms).

The year 1981 was the sixth that its per mu yield reached over 1,000 jin (7,500 kilograms of grain from one hectare). The per unit area yield of 33,000 mu (2,200 hectares) of grain field was 1,067 jin (533.5 kilograms). Vegetable output has been 52 million jin (26 million kilograms) every year. Milk cows increased by 50 percent from 12,000 3 years ago to 18,000 now. Milk production was increased by 35.6 percent and pigs increased by 41.6 percent. The fish catch has doubled. Chicken farms, force-fed duck farms and orchards were expanded.

About 100 industry and sideline enterprises have been developed, run either by the commune, or by brigades. Gross income from these enterprises grew from 30 million yuan in 1978 to 50.13 million yuan, in 1981, an increase of 67 percent.

The commune has helped enrich Beijing's market by selling more produce to the state. Its commodity grain increased by 71.6 percent. It also provides the market every year with 45 million jin (22.5 million kilograms) of vegetables, 11.2 million jin (5.6 million kilograms) of fresh milk, 17,000 pigs, 230,000 jin (115,000 kilograms) of fresh fish, 500,000 jin (250,000 kilograms) of eggs, 60,000 ducks and 3.6 million jin (1.8 million kilograms) of fruits.

The increases are attributed to the responsibility system. The Wuliqiao brigade is an example. It contracted 54 mu of land (less than 4 hectares) to 28 commune members for specialized production. The total output was 62 percent higher than the previous year and the members' income quadrupled. The average value of production per mu (1/15th of a hectare) rose to 1,144 yuan. The average annual distribution to each laborer was 1,370 yuan with the highest more than 1,800 yuan.

In the last 2 years the living standard of the commune members has been improved. According to a survey, some 1,900 households have built 6,000 new houses. Fifty percent of the households have bought TV sets. Thirty percent of the brigades have set up pensions for elderly members over the age of 60, ensuring the livelihood of the commune members when they lose their ability to work.

Shuangqiao people's commune is looking forward to an even brighter future in 1983.

CSO: 4020/11

AGRICULTURAL BANK OF CHINA HOLDS MEETING

OW030940 Beijing XINHUA in English 0758 GMT 3 Oct 82

[Text] Shijiazhuang, 3 Oct (XINHUA)--China's rural savings deposits are more than treble those of 3 years ago and the amount of agricultural loans issued up to the end of August was 65.2 percent more than in the same period of 1978.

The figures were released at a recent meeting held by the Agricultural Bank of China and its branches on experience in improving the economic results of agricultural loans. According to the meeting, held in Shijiazhuang, capital of Hebei Province, rural savings deposits totalled 48,900 million yuan at the end of August. More than 66,900 million yuan of agricultural loans had been extended to rural collectives and individual undertakings by the end of August. About 98.9 percent of the loans due have been repaid.

Delegates to the conference attributed the good situation to rapid agricultural development and correct economic policies in rural areas.

The Agricultural Bank and the credit cooperatives have changed the practice of issuing the agricultural loans primarily for developing grain production and adopted the policy of encouraging the diversification of the rural economy. They have extended bank loans both to collective units and individual households to promote farming, forestry, stockraising, fishery, rural industries and other sidelines and helped peasants make fuller use of local resources.

The loans have helped stimulate commodity production and promoted rural processing industries and commodity circulation, it was reported at the meeting.

Some branches of the Agricultural Bank of China helped production brigades and teams solve problems that have resulted in expanded production.

Loans were extended to production units to popularize fine varieties of seeds and apply fertilizer in a scientific way.

According to the conference, a loan contract system has been instituted that is combined with purchase contracts.

As the autumn harvest season approaches, the rural credit cooperatives and branches of the Agricultural Bank of China are preparing for brisk financial activity.

CSO: 4020/11

DEFINITION OF CHINESE TERM ASCERTAINED

Beijing RENMIN RIBAO in Chinese 21 Sep 82 p 4

[In Column "Answer To the Readers": "How Should 'Fan Liang Fan' Be Understood?"]

[Text] Comrade Hu Yaobang proposed in his report to the 12th CPC National Party Congress that we strive by every means--consistent with an uninterrupted rise in economic benefit--to cause China's annual gross value of industrial and agricultural output to "fan liang fan." Several readers have requested an explanation of the numerical value of "fan liang fan." This newspaper has, therefore, made inquiries of the departments concerned, and their answers are as follows:

[Question] Comrade Hu Yaobang stated in his report that, by the end of the century, we should strive to "fan liang fan" China's annual gross value of industrial and agricultural output compared with 1980. Could you please explain how the phrase "fan liang fan" is to be understood?

[Answer] To strive by every means--with the proviso of an uninterrupted rise in economic benefit--to "fan liang fan" China's annual gross value of industrial and agricultural output by the end of this century is the grand objective proposed by the Central Committee of the party, after a comprehensive analysis of China's economics conditions and development trends. In line with China's practice [usage], "fan yi fan" means to double the base figure ["jishu de liang bei"], and "fan liang fan" means to quadruple the base figure ["jishu de si bei"]; therefore, using the 1980 gross value of industrial and agricultural output of 710 billion yuan as the base figure, and treating "fan liang fan" as "4 x," we obtain a product of about 2,800 billion yuan.

[Question] In his report, Comrade Hu Yaobang speaks of the 1980 gross value of industrial and agricultural output as being 710 billion yuan, whereas in the 1980 communique issued by the State Statistical Bureau the figure is given as 661.9 billion yuan. How come the two figures do not agree?

[Answer] The figure for 1980 gross value of industrial and agricultural output published in the Statistical Communique--661.9 billion yuan--was computed on the basis of 1970 constant prices. The figure of 710 billion yuan cited in Comrade Hu Yaobang's report was computed on the basis of 1980 constant prices.

Because it speaks of an objective over the next 20 years, it is a little closer to reality to use 1980 constant prices than to use 1970 constant prices. In China's plans and statistics, [the use of] "constant prices" means the use of prices of products in one given year to compute the fixed price of the gross value of output, and thereby to observe the rate of increase in each [succeeding] period.

CSO: 4007/19

BRIEFS

COTTON BOLLWORM VIRUS--Wuhan, 4 Oct (XINHUA)--Chinese biologists have designed and made the country's first set of equipment for cotton bollworm virus culture, marking a new step forward in controlling the pest, according to the Shashi Applied Automation Technology Institute in Hubei Province. The virus obtained from 5 to 10 cotton bollworms can mix enough insecticides for 1/15th of a hectare of cotton. The killing rate is more than 85 percent, research personnel say. Funded by the State Science and Technology Commission, the experiment in streamlining the virus production will soon enter into its intermediate stage. The equipment was designed by the Shashi Applied Automation Technology Institute and the Jingzhou Prefectural Institute of Microbiology. It consists of a mating and ovipositional box, a feed distributor, a worm breeding plate, a virus infection machine and a worm breeding plate washing machine. The streamlined method is between 10 and 20 times more efficient than the test tube breeding method. The feed mix costs are low and the mix does not affect the worm's physiological habit, research personnel say. China obtained the first nuclear polyhedrosis virus from dead cotton bollworms in 1974. [Text] [Beijing XINHUA in English 1213 GMT 5 Oct 82]

RAINY SEASON AFFORESTATION--Beijing, 28 Sep (XINHUA)--China has finished afforestation work for this year's rainy season. A total of some 6.8 million mu were afforested in Yunnan, Shandong, Henan, Beijing, Tianjin, Hebei, Shanxi, Nei Monggol, Shaanxi and Liaoning. Of this acreage, 1.03 million mu were afforested by using aircraft to dispense tree seeds. Aside from this, 115,000 mu of saplings were grown in Hebei, Shanxi, Beijing, Tianjin and Shandong during the rainy season. [OW141115 Beijing XINHUA Domestic Service in Chinese 0028 GMT 28 Sep 82]

CSO: 4007/13

BRIEFS

INTEGRATED ENTERPRISES--According to the authorities concerned, the nation's land reclamation and state farm departments have set up 270 integrated enterprises combining agriculture industry and commerce. Some 1,200 state farms, 58 percent of the total in the country, participate in the integrated enterprises. As a result, revenues have increased and the living standards of staff members have improved. [Beijing Domestic Service in Mandarin 1000 GMT 28 Sep 82]

CSO: 4007/13

BRIEFS

PIG PROCUREMENT--Nanning, 8 Oct (XINHUA)--As of 26 September, Duan Yao Autonomous County in Guangxi had procured 70,000 pigs, four times as many as that for the same period last year. [OW181329 Beijing XINHUA Domestic Service in Chinese 0050 GMT 8 Oct 82]

CSO: 4007/13

BRIEFS

AGRICULTURAL MACHINERY--From 1980 to August this year, 733 large and medium-size tractors, 1,992 manual tractors, 2,686 trailers, 721 plant protection machines, 2,621 motors used in agriculture, 3,068 diesel engines, 18,010 grinders and other agricultural machinery were sold in Guizhou Province. Their total value was 85.6 million yuan. [HK061401 Guiyang Guizhou Provincial Service in Mandarin 2315 GMT 4 Oct 82]

LIVESTOCK SUPPLY--Over the past 3-1/2 years, Guizhou Province has supplied 150,000 head of livestock to 13 provinces and autonomous regions, including Shandong, Henan, Zhejiang, Shanxi, Jiangsu, Jiangxi, Yunnan, Hunan, Hubei, Guangdong and Guangxi. [Guiyang Guizhou Provincial Service in Mandarin 2315 GMT 4 Oct 82]

CSO: 4007/13

EFFORTS BEING MADE TO INCREASE LEAN PORK PRODUCTION

Nanjing XINHUA RIBAO in Chinese 12 Aug 82 p 2

[Commentary: "Let There Be More Lean Pork"]

[Text] As the living standards of the people in the cities and villages improve, the masses are asking for more lean pork to eat. This has presented a new problem for the production of live hogs: more lean pork hogs must be raised.

The concerned departments in the province have already begun to pay attention to this request by the masses. The raising of more lean pork hogs is needed in society, and material conditions make it possible. This year, our province has realized bumper harvests in rape. The amount of protein feed for live hogs will increase greatly, and good conditions for raising more lean pork hogs will be provided. At the same time, we should also see to it that the economic gain from raising more lean pork hogs is high. Comrades of the provincial Animal Husbandry Bureau have calculated: Last year, the whole province procured 17 million head of pork hogs; calculating at 180 jin per head and a slaughtering percentage of 70 percent, the percentage of lean pork produced now is about 35 percent in general. Each hog produces only 44 jin of lean pork. If the percentage of lean pork can be increased by 10 percent (this can be done), then each head can produce 56 jin 7 liang of lean pork [figures as published].

In order to raise more lean pork hogs, we must study and readjust the relevant policies, and at present we must strengthen the selective breeding of lean pork hog varieties and select lean pork type hog varieties suitable to the feeding conditions in each locality in order to provide sources for popularizing the raising of lean pork hogs over a large area. Today, this paper reported on an experiment by Ningzhenyang Prefecture to improve cross-breeding of wild boars and lean pork type hog species. This is a welcome beginning. According to reports, many scientific and technical persons throughout the province have already begun to carry out this work. The managerial departments at each level must actively provide guidance, support this work in many ways, rapidly establish a number of bases for the breeding and cultivation of lean pork type hogs, and hasten the progress in breeding lean pork type live hogs.

Of course, the development of lean pork hogs also involves the problem of the type of feed. To raise lean pork hogs with a higher level of protein, we must have feed with a higher protein content. The potential of sources of protein feed in our province is large. Each year, the whole province produces 100 million jin of cottonseed cakes and vegetable cakes. If 70 percent could be used "first as feed and then as fertilizer," this could greatly raise the protein level in the feed needed for raising lean pork type hogs. Panwan Commune in Sheyang County did this well in comprehensively utilizing feed resources. This commune used 80 percent of the cottonseed cakes to feed the hogs. For 2 consecutive years, each family sold an average of three hogs, and food grains and cotton also increased in output. Therefore, we must advocate the use of cottonseed cakes and vegetable cakes to feed the hogs first and then as fertilizer in the fields in order to solve the problem of protein feed needed by lean pork hogs. The food grain departments should more actively develop and coordinate the feed processing industries so that the exchange of "the two cakes" can be done well. According to the stages of growth and development of live hogs, different types of mixed feed should be supplied. In general, as long as everyone exerts efforts and every sector coordinates with the others well, there will gradually be more lean pork hogs.

9296
CSO: 4007/595

BRIEFS

SUINING COUNTY GRAIN HARVEST--Since the third plenary session of the 11th CPC Central Committee, Jiangsu's Suining County has had bumper harvest every year. Grain output has increased by 90 percent with an average yearly increase of 90 million jin. This year it expects to reap a bumper harvest again. The county has dug 90 large, 516 medium-size and 5,820 small ditches. It has also built 588 sluices and 2,828 bridges. Some 970,000 mu of farmland is brought under irrigation, and 920,000 mu of farmland is free from waterlogging. [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 8 Oct 82]

SUZHOU PREFECTURE COTTON PRODUCTION--As of the end of September, Suzhou Prefecture in Jiangsu had procured 217,000 dan of cotton, topping the same period of last year by 300 percent. The prefecture had planted 750,000 mu cotton this year. [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 13 Oct 82]

CSO: 4007/13

BRIEFS

DAYU COUNTY HYBRID RICE--Dayu County, Jiangxi, is reaping bumper harvest of hybrid rice crops from 46,700 mu this year. Total output is expected to reach 4.2 million jin. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 12 Oct 82]

GAOAN COUNTY COTTON--As of 25 October [as heard], Jiangxi's Gaoan County had procured 32,794 dan of cotton, overfulfilling this year's cotton procurement plan by 6.8 percent and topping the same period of last year by 80.7 percent. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 3 Oct 82]

CSO: 4007/13

PROVINCE DEVELOPS FOOD PROCESSING INDUSTRY

OW050840 Beijing XINHUA in English 0801 GMT 5 Oct 82

[Text] Shenyang, 5 Oct (XINHUA)--Liaoning Province is actively developing its food processing industry by making use of locally grown produce, according to the provincial industrial department.

In the first 8 months of this year, the output of canned food, beer, gourmet seasoning and dairy products increased by 15 percent to 31 percent compared with the same period of last year.

The province now has 16 breweries which produced 139,000 tons of beer last year as against the 57,000 tons in 1978, and the average amount consumed by each person increased from 1.87 kilograms to 4.1 kilograms during this period. The Shenyang beer factory is planned to be expanded into one with an annual capacity of 100,000 tons to satisfy the 2.6 million population of the city.

The nine small sugar plants in the province are now producing 50 varieties of products. Five of them are being expanded and transformed to increase the capacity from the present 200 tons to over 500 tons of sugar each.

All this is part of the efforts made by Liaoning Province, China's leading heavy industrial center, to speed up the growth of its light industry in line with the national policy to provide more consumer goods for the people.

In order to better meet the needs of the domestic and foreign market, the province has consistently improved the quality of its products, the officials say. Some of the products, including Shenyang liquor, Snowflake brand beer, Dalian rice wine, Hawthorn wine, applie wine, Dongfeng brand cigarette and Dalian canned conch, are very popular.

The province now grows hops, grapes, tobacco, sugarbeets and fruits and vegetables on a total of 28,000 hectares. It has also set up an asparagus production base with a total acreage of 1,530 hectares, which is expected to help increase the output value of canned food industry by 30 million yuan a year.

The total output value of the food processing industry of the province last year was 1,130 million yuan, 44 percent above that of 1978.

Light industrial output value in the province has increased from 26.7 percent of the total industrial output value in 1978 to 37.6 percent last year, making the proportions between heavy industry and light industry more rational, according to the industrial department.

CSO: 4020/11

PACE OF ANTIFLOOD PROJECTS BEING ACCELERATED

Xian SHAANXI RIBAO in Chinese 30 Jul 82 p 1

[Article: "Xianyang Weihe Flood Prevention Project Hastens Progress; as of 12 July, Engineering Projects on the Two Dangerous Segments at Xianyang Gudu and East of Gongluqiao Have Been Completed"]

[Text] Before the arrival of the flood season, the Xianyang City People's Government concentrated manpower and materials and grasped the construction of the flood prevention project on the Weihe. As of 12 July, the engineering projects on the two dangerous segments at Xianyang Gudu and east of Gongluqiao have been completed. Over 500 meters of new embankments have been built, and over 30,000 cubic meters of earth construction have been completed. Of the 1,550 concrete poured stakes needed for the entire project, 910 have been poured, and the first phase of construction has basically ended.

The Weihe flows from west to east around Xianyang City. In recent years, because the silt in the riverbed has increased, the river channel has become narrow and the water level has continued to rise. This year, to safeguard the people's lives and to prevent the loss of state property, the Xianyang City People's Government actively organized personnel in May to begin work to heighten and fortify the 2,000-meter-long embankment and to pour new foundations for the 2,300 meters of river without embankment.

During the past 2 months of construction on the Xianyang Weihe flood prevention project, many units have actively sent people to participate in construction and have quickened the progress of construction. To enable Xianyang City to safely survive the flooding period, the city people's government recently held a mobilization meeting for the second phase of construction. It decided to complete the earth embankment project along the section of the river with newly poured foundations before the flooding period arrives and to complete key well-sinking projects.

9296
CSO: 4007/595

BRIEFS

PEASANT INCOME INCREASES--According to the investigation of the income and expenditures of 984 households of commune members in 30 counties of Shaanxi Province, the average per capita cash income of peasant households in the first half of this year was 78.3 yuan, 23.4 yuan more than in the first half of last year. [HK071342 Xian Shaanxi Provincial Service in Mandarin 0500 GMT 6 Oct 82]

CSO: 4007/13

BRIEFS

LESHAN PREFECTURE RICE PRODUCTION--The per mu yield of the 3.45 million mu of mid-season rice in Leshan Prefecture in Sichuan Province was some 800 jin and total output increased by approximately 200 million jin and was 7.5 percent more than last year. The prefecture has trained some 1.7 million rural cadres and peasant technicians, cultivated high-yielding demonstration plots of some 900,000 mu and set up some 80,000 scientific and technological demonstration rooms. [Chengdu Sichuan Provincial Service in Mandarin 0030 GMT 4 Oct 82]

WENJIANG PREFECTURE PADDY OUTPUT--According to preliminary statistics, total output of paddy rice in Wenjiang Prefecture, Sichuan Province, this year was some 3.3 billion jin, some 200 million jin more than last year. The per mu yield was some 810 jin. The prefecture has a large number of communes whose per mu yield exceeded 1,000 jin. Peng County has 680,000 mu of paddy fields, whose total output exceeded 700 million jin. Qionglai County has 15 communes, whose average per mu yield of paddy rice exceeded 1,000 jin. [Chengdu Sichuan Provincial Service in Mandarin 0030 GMT 5 Oct 82]

RELIEF WORK CONFERENCE--The Sichuan Provincial People's Government recently held a conference on relief work in Fuling, Daxian, Wanxian and Leshan prefectures. The conference looked into and arranged for relief work through production this winter and next spring. Vice Governor Liu Haiquan presided over the conference and spoke. Responsible comrades of relevant departments at the provincial level attended. The conference demanded that leaders at all levels and the masses in the stricken areas make sustained and redoubled efforts and further do relief work well. In particular, cold winter is soon approaching, and it is necessary to step up solving the masses' livelihood problem during the winter. In relief work, it is essential to adhere to the principle of self-reliance and mutual assistance. All places must strengthen the management and use of relief materials and funds, which should be used only for the purpose of relief and should not be misappropriated. [HK071346 Chengdu Sichuan Provincial Service in Mandarin 0030 GMT 5 Oct 82]

RICE HARVEST--Chengdu, 7 Oct (XINHUA)--Sichuan Province, China's leading rice producer, reaped a record 16.6 million tons from its 2.9 million hectares of semilate rice, one million tons or 6.4 percent more than 1981, itself a good harvest year, according to provincial authorities. Per-hectare yield was more than six tons in Mianyang, Wenjiang, Leshan, Neijiang, Ya'an, Young-chuan, Chengdu and Dukou prefectures and cities, a record for these major semilate rice growers. The authorities attributed the increased yields to popularization of improved rice strains, new cultivation techniques and the services of local agrotechnical stations. Improved rice strains were used throughout the province except in outlying mountainous areas. Nearly one million hectares were planted to corssbreed, 130,000 hectares more than last year. New cultivation techniques applied included two-stage hot-house seedling nursing and the breeding of strong seedlings at the tillering stage. In Yongchuan, Nanchong and Yibin prefectures, peasants applied zinc fertilizer to prevent seedlings from turning yellow. This year, the province also instituted a system by which commune agrotechnical stations contracted with rice growers to provide technical services for rice production. [Text] [OW081152 Beijing XINHUA in English 0723 GMT 7 Oct 82]

CSO: 4020/11

BRIEFS

FARM PRODUCTION INCREASES--Over the past 3 years, total output of grain at the farm of the second regiment of the first agricultural division of the Xinjiang production and construction corps has increased from 10 million jin to 25 million jin. In 1982, the farm submitted 700,000 yuan in profits to the state. Over the past 3 years, the farm has built houses on some 20,000 square meters, and the average per capita housing area is 8.5 square meters. Over 90 percent of the staff and workers on the farm have bought tape recorders, bicycles and sewing machines. The average savings deposited with banks by each household is 700 yuan. [Urumqi Xinjiang Regional Service in Mandarin 1300 GMT 6 Oct 82]

CSO: 4007/13

BRIEFS

FISHERIES CONFERENCE--The first Yunnan provincial conference on fisheries was held in Kunming Municipality 18-26 September. The conference discussed and looked into the principle and policy on the speeding up of the development of fisheries and formulated a plan and the measures to promote the large-scale development of fisheries. The conference stated that the province has some 4 million mu of water surface, which accounts for 1/10th of the area of arable land throughout the province. Some 2.6 million mu of the water surface is suitable for artificially breeding fish. The province has very good conditions for developing fish production. Output of fish in the province in 1981 was 16,300 tons. The province has planned to achieve the target of 30,000 tons of fish in 1985. [HK121423 Kunming Yunnan Provincial Service in Mandarin 1100 GMT 9 Oct 82]

CSO: 4007/13

BRIEFS

MEAT FROM WESTERN U.S. STATES BANNED--Taipei, 24 Sep (CNA)--The Board of Foreign Trade (BOFT) has announced a ban on all beef, pork, sausage and live cattle imports from Colorado, Utah, New Mexico and Arizona, effective immediately. According to the board, the highly communicable disease of vesicular stomatitis is rapidly spreading through the four-state region and affecting most cattle and pigs. The board noted that since Japan is likely to impose similar restrictions on imports from the region, local manufacturers of beef and pork may be able to use this opportunity to boost their frozen meat exports to Japan. [Text] [OW240427 Taipei CNA in English 0332 GMT 24 Sep 82]

CSO: 5400/4106

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